

## *ABSTRACT OF THE DISCLOSURE*

The present invention provides a plasticized dehydrated or freeze-dried bone and/or soft tissue product that does not require special conditions of storage, for example refrigeration or freezing, exhibits materials properties that approximate those properties present in normal hydrated tissue, is not brittle, does not necessitate rehydration prior to clinical implantation and is not a potential source for disease transmission. The invention replaces water in the molecular structure of the bone or soft tissue matrix with one or more plasticizers allowing for dehydration of the tissue, yet not resulting in an increase in brittleness of the plasticized product, and resulting in compressive and/or tensile properties similar to those of normal hydrated bone. Replacement of the chemical plasticizers by water prior to implantation is not required and thus, the dehydrated bone or soft tissue plasticized product can be placed directly into an implant site without significant preparation in the operating room.